

Senior Research & Development Engineer (Power Electronics, Machines and Drives)

Department	Power Networks Demonstration Centre (PNDC) (http://www.strath.ac.uk/research/powernetworksdemonstrationcentre/), Department of Electrical and Electronic Engineering (http://www.strath.ac.uk/engineering/electricelectricalengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	353653
Reports To	PNDC Programme Delivery Manager	Grade:	8
Salary Range:	£41526 - £51034	Contract Type:	Fixed Term* (Initially for 24 months)
FTE	1	Closing Date	31/03/2021

Job Advert

The PNDC is a world-class facility with dedicated staff that will accelerate the adoption of new, 'smart' technologies within advanced power grids, supporting the increased accommodation of renewable energy, electric vehicles, and demand side management. The £12.5 million Centre - the first of its kind in Europe – was founded by the University of Strathclyde and leading energy companies including Scottish Power Energy Networks and Scottish and Southern Energy Power Distribution, with support from Scottish Enterprise and the Scottish Funding Council. The Centre has expanded its membership since its founding and this growth is set to continue.

The PNDC are looking to appoint a Senior Research and Development Engineer to research, develop, test, and demonstrate technologies for electrification of transport and energy storage in the utility and transportation sectors. Opportunities for innovation are extensive, through the strong working relationship and routes to market afforded by the PNDC's industry members and commercial engagements. This will be supplemented with collaborative opportunities with other research and industry teams in the UK and abroad. The successful candidate will work as part of a growing team on a wide range of technical projects, with a particular emphasis on experimental validation and testing. You will be expected to lead on specific research areas and contribute to others and will develop project plans for consideration by industrial partners and clients. You will apply as Principal or Co-Investigator for high value industrial funding proposals. Through engagement with relevant professional knowledge exchange activities you will lead the PNDC's external profile and technical leadership.

The team is undertaking an exciting expansion of the facility, with whole energy systems and low carbon propulsion facilities being added. This is enabling the team to provide critical contributions to national and regional initiatives, such as the Hydrogen Accelerator and the Industry Strategy Challenge Fund's Driving the Electric Revolution (DER) Challenge. PNDC is set to play a leading role in the de-risking of high integrity, high power, electrified powertrains for aerospace, marine and heavy-duty vehicles, as well as accelerating the deployment of grid-connected power electronics. These investments and engagements through DER Centre Scotland mean the PNDC is now able to offer a unique opportunity for power electronic, machines and drives (PEMD) specialists to work at the cutting edge of industrial innovation in the energy and transport sectors as they transition to net-zero.

The PNDC seeks therefore to appoint an PEMD specialist as Senior Research and Development Engineer, to lead and manage delivery of a rapidly expanding research and innovation programme in the areas of grid flexibility, electric vehicle integration and electrified, high power propulsion and power trains. The candidate will also be able to lead and contribute to high value industrial funding proposals. The post holder will be expected to work in the dynamic team environment of PNDC, collaborating extensively with industrial partners, and engaging with the academic research teams accessible through the wider Institute for Energy and Environment. There will be a strong emphasis on knowledge exchange and practical evaluation in test rigs, and significant opportunity to drive sector-leading impact.

To achieve the above, the Senior R&D Engineer will have sufficient research and/or industrial experience in at least two of the following technical areas:

- a) Control systems for power electronics converters
- b) Utilization of new semiconductor technology for power converters and power supplies
- c) Industrial application of power electronics
- d) System integration of power electronics converter for industrial application
- e) Electrical machines configuration, integration, and performance evaluation
- f) Design of power electronics converters for industrial applications
- g) Development of detailed technical specifications for new design concept

To be considered for the role, you will have a good honours degree and PhD / higher degree (or equivalent professional experience) in appropriate discipline. You will have the ability to conduct individual knowledge exchange projects, work directly and independently with clients, and to prepare new knowledge exchange proposals.

*Whilst funding for this position is guaranteed for an initial period of 24 months, the postholder will be expected to drive the growth and income of the PNDC by submitting proposals and securing high value industrial funding, and for the role to become self-sustaining in the longer term.

Job Description

Brief Outline of Job:

Enter Brief outline of job. To pursue and establish an independent and high quality knowledge exchange programme/s, including securing knowledge exchange contracts and funding; manage knowledge exchange programmes to ensure delivery of associated objectives; where appropriate, to manage a knowledge exchange team (staff and students); to engage as appropriate in relevant research and teaching activities; and to carry out administrative tasks assigned by the Head of Department/School.

Main Activities/Responsibilities:

1.	Provide technical expert advice and lead on collaborative research, development, and testing projects relevant to the PNDC's energy and propulsion innovation programmes. Determine and utilise appropriate new research methods, with a focus on practical implementation and validation within the PNDC facilities.
2.	Apply technical knowledge to industry issues to investigate and quantify problems experienced by PNDC members and clients, by developing project outlines and project specifications for consideration as part of the centre core programme or directly funded work. Contribute to the development of geared funding proposals.
3.	Maintain appropriate engagement with industrial members and third-party vendors to ensure relevance and accuracy of work. Maintain professional awareness to ensure originality and exploitability of the research outputs.
4.	Contribute to policy and industry consultations where appropriate, in support of PNDC input to the sector.
5.	Maintain appropriate engagement with colleagues in the wider university teams, to support the capture of further funding opportunities, exploit synergy with other research programmes and contribute to alignment with key industry member needs.
6.	Work with academics, the PNDC R&D Director and the PNDC R&D team to develop the PEMD, EV and ESS related R&D program. Maintain and improve the relationship with the theme's industrial partners.
7.	Assess, evaluate, and interpret outcomes of R&D project activity, identifying new applications/approaches/techniques or technologies and ensuring that any IP generated is recognised and managed appropriately.
8.	Project manage larger, more complex projects, ensuring deliverables are met and clear reporting is available. Manage delivery of 3rd party contributions or suppliers as required including resolving problems of meeting objectives and deadlines and resolving any difficulties that may occur between the internal team and partners.
9.	Provide expert guidance to project teams in area of expertise to ensure resource efficient solutions are developed in response to industry and research challenges. Mentor colleagues with less experience and advise on personal development.
10.	Provide quality technical and progress reports of research, development, and testing work for distribution to members and clients. Adopt best practice in effective knowledge transfer and support wider dissemination at conferences and in peer reviewed journals.

11.	As part of the dynamic team at PNDC, contribute to the design and commissioning of new test rigs and to the safe operational running of the centre, including effective administration and knowledge exchange events and initiatives.
12.	Engage in continuous professional development, participating in external networks and consultations to maintain current knowledge of relevant state of the art, patent positions, products, and technology readiness levels.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good honours degree and PhD / higher degree (or equivalent professional experience) in an appropriate discipline related to Power Electronics, Machines and Drives.

D1 Membership of relevant professional bodies relating to installation, safety and operation of distributed energy resources or other power electronics applications.

Experience

E2 Significant experience of addressing a range of industrial and commercial challenges within an academic or industrial enterprise.

E3 Ability to lead in and take technical ownership of research and development areas and manage the work of R&D engineers.

E4 A track record of developing research and development project proposals and securing funding

E5 A track record of engaging with industry and research institutions to shape collaborative research and development projects or programs

E6 A track record of leading the delivery of research and development projects

D2 Experience of the design, development, and execution of test methods.

D3 Knowledge of protection, control, automation and/or measurement schemes, with experience of working in the energy or transport sectors.

D4 Experience programming controllers for power electronics and testing (FPGA, DSP)

Job Related Skills and Achievements

E7 High levels of initiative with the ability to apply knowledge in a highly practical environment, and to generate new ideas;

E8 Ability to lead in and take technical ownership of research and development projects and deliver at a high technical industrial standard.

Personal Attributes

E9 Excellent interpersonal and communication skills (oral and written), with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

E10 An ability to work as part of a team, through participation in collaborative projects, and developing evidence of leadership

E11 Ability to develop new areas and manage associated ambiguity as new research themes emerge

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to Simon Hill, PNDC Delivery Programme Manager (simon.hill@strath.ac.uk / +44 1236 617189).

Conditions of Employment

Conditions of employment relating to the Knowledge Exchange staff category can be found at: [Conditions of Employment](#).

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

Probation

Where applicable, the successful applicant will be required to serve a 12 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

Interviews

It is anticipated that interviews for this post will be held in April 2021.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing gender equality in academia across all academic disciplines and professional and support functions.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. [Our Values](#) have been derived from how we act and how we expect to be treated as part of Strathclyde.

